MODIS TECHNICAL TEAM MEETING

Building 33, Room E125
August 17, 2000

Vince Salomonson chaired the MODIS Technical Team Meeting. Present were Bob Murphy, Mike Roberto, Barbara Conboy, Bruce Guenther, Bruce Vollmer, Bruce Ramsay, Dorothy Hall, and Wayne Esaias, with David Herring taking the minutes.

1.0 SCHEDULE OF EVENTS

- SWAMP Meeting   Sept. 6-7
   U. of Toronto, Canada
- EOS/SPIE Symposium on Remote Sensing   Sept. 25-29
   Barcelona, Spain
- SPIE's Remote Sensing Japan 2000   Oct. 9-12
   Sendai, Japan
- VENICE-2000 (Oceans from Space)   Oct. 9-13
   Venice, Italy
- Ocean Optics XV   Oct. 16-20
   Monaco
- PORSEC 2000   Dec. 5-8
   Goa, India
- AGU Fall Meeting   Dec. 15-19
   San Francisco, CA
- Aqua Launch   Dec. 21

2.0 MINUTES OF THE MEETING

2.1 MODIS Project Reports
Roberto reported that the Project Office is still in the mode of determining if the Terra MODIS instrument is operating properly on the A-side electronics. He said the instrument seems to be running normally during real time passes, even as the Flight Ops team is turning on and off the FIFO (first in, first out data buffers).

Roberto noted that during these tests the data have been flowing through the normal avenues from White Sands to EDOS to the GDAAC. Project also looked at MODIS Direct Broadcast to make sure it is operating properly. The last patch to the data formatter software was received today that will return the instrument to its normal operations mode. Roberto said Flight Ops will continue to monitor MODIS' performance as it resumes its normal mode of operation tomorrow (Aug. 18). If the instrument does well, then Project will continue with science data operations over the weekend. He said a new monitoring system was put in place for monitoring of MODIS' status by Terra Flight Ops. One difference in

operations, starting tomorrow, is that Flight Ops will no longer turn the FIFOs off before the end of real time contacts, meaning data will flow continuously. Based upon its analysis, SBRS concluded, and GSFC concurred, that it is virtually impossible to get both FIFOs into "read mode" at same time; and thus leaving the FIFOs on should not pose a risk to the hardware.

2.2 MCST Reports

Guenther announced that Kirsten Parker is leaving the MCST team on Tuesday, Aug. 22.

Guenther showed a MODIS Direct Broadcast image in true color (acquired Aug. 16). This is proof that data are coming down and the instrument is working well. Guenther said he cannot comment on the data quality at this time, as MCST is still looking at that.

Guenther distributed copies of a MODIS Electronics Block Diagram. He described a problem that SBRS is assessing with the MODIS resistor network block. At one point, SBRS took time to replace some 400 of the resistors. These are thin film resistors' network packages. The problem was the resistor package had gold on the base and SBRS used epoxy to fix the thin film down onto the package. The manufacturer then used a machine that was out of calibration and overheated the resistor networks in final assembly. The suspect components are distinguished by date code (week in year that each component was manufactured) and all resistor network components in Aqua MODIS are for a date code where we know that there is no overheating during the final assembly of these components.

Guenther reported that MCST has a new version of the Level 1B (version 2.4.3) installed in the system, complete with new look-up tables.

Salomonson said he is still concerned about the boards being changed on Aqua. He said he would like to ask Ghassem Asrar's permission for SBRS to proceed with changing the board in parallel with building new ones as well as changing out the old ones.

Salomonson asked Roberto when the switch will be made to the B-side electronics as MODIS resumes normal science operations. Roberto said that is a separate issue. First, Project wants to make sure they return MODIS to normal operations on the A-side. They haven't yet addressed all the issues involved with changing over to the B-side. He said Paul Ondrus, Earth Sciences Operations Manager, has mentioned the idea of getting approvals up the line of command before making the change. Guenther added that Ondrus requested a letter from Salomonson that requests the change from A-side to B-side. With that letter, Ondus will go to the management council to get approval.

2.3 GDAAC Reports

Vollmer announced that changes to PGE02 have been installed in the GDAAC and should be ready to run by this evening.

Salomonson said he has an action item produce some metrics from the science community to help convince Congress that they shouldn't keep trying to challenge this group by cutting funding support every year. Salomonson feels we need more funding support, not less. He recognized that Yoram Kaufman and Skip Reber are working to describe the EOS Program in such a way as to improve the funding picture. Salomonson said he asked Kaufman to participate actively in this activity. He acknowledged that the science teams are getting Terra data and are pleased with the quality. But now we need to help the data system reach its full potential.

Vollmer said that in the time MODIS was down, the GDAAC has been getting a trickle of "gap" data so the GDAAC is catching up on reprocessing.

Also, he said the GDAAC has entered the full Aqua release 5B into the Ops system. The next release will be version 5.5. There will be a transition taking place from now through November in order to be ready for the launch of Aqua. Vollmer said the GDAAC hasn't taxed the system yet with full-up production, so they are interested to conduct that test.

2.4 SDST Reports
Masuoka distributed a handout that presents a snapshot of the availability of recent global MODIS data (see Attachments 1 & 2). Given that MODIS was off, SDST has been trying to get the vendor to repair its SGI Origin 2000 computer so that it will run on all of its 80 processors. In so doing, he said SDST is finding out things they didn't know about the SGI operating system software. In particular, at SDST's request, the vendor revised the xfs-repair utility so that it can handle over 2GB of working space. This was necessary to repair problems in the 10TB file system attached to MODAPS. They are running some last diagnostics, but now MODAPS is up to an 80-processor system. Currently, SDST has a 2-day backlog of processing remaining. Aside from that, the GDAAC has 10 days that are open and waiting to be completed. In terms of days closed, MODAPS is out by 2 days.

Masuoka presented a chart that shows the GDAAC's inventory of data from days 185-192. If all products are produced for all granules in a day, then the total number of granules archived should be 1,728. Masuoka's chart showed the actual number of granules in the archive. During the period shown, none of the days reached the full potential, with the most being day 192 (1,686 granules) and the least being day 191 (862 granules). On the chart, the numbers in the bottom row of boxes refer to the numbers of not produced.

Masuoka admitted that day 191 does not look good, but the other days are much better. He told the Team that the GDAAC created a Level 0 monitor that looks inside a given delivery from EDOS to see how many "holes" it has in the data stream. He said that, overall, the the ground system (EDOS, GDAAC and MODIS) need to understand why there are holes and what we can do to prevent holes in the data products if we are to reach the maximum of 1,728 granules produced per day, i.e. all of the output from the Level 1 PGEs.

Masuoka said that MODAPS' inventory of Level 1 products is less than the GDAAC's. This is because MODAPS often has to begin processing of an 8 day period before all granules are available for each of the days.Salomonson feels the system needs to improve. Ultimately, it should do as well as or better than AVHRR. Vollmer noted that as the GDAAC reprocesses and fills in data gaps, these numbers will continue to rise upward toward the 1,728 goal.

2.5 Snow and Ice Update
Hall said she has received some sea ice products from Don Cavalieri. There was a field experiment from June - July 2000. She found three good days of MODIS data coverage during that time and she is analyzing them now.

2.6 Ocean Group Reports
Esaias shared some new MODIS images that use the University of Miami's new look-up tables. In the past, he said, there has been great concern about sun glint. Personnel in Miami developed a good new sun glint correction algorithm that expands the area of MODIS' useful data. The Ocean Group is finally doing real validation work now. Their validation work includes an aerosol component of glint as well as a surface component, and it includes polarization. Esaias said there might be aerosol polarization effects that were not yet picked up. In the image, he said you can see the wind speed dependency. These data will be cross-compared with MOBY data.

The Ocean Group also now has look-up tables that greatly remove striping. Most these corrections were included in the latest software delivery. Esaias showed a MODIS chlorophyll image with a sun glint correction. There is still some residual striping, but he expects that to be removed in newer look-up tables being developed.

Esaias presented an Ocean Group data products release schedule (See Attachment 3). He said Ocean is running about one week behind. Hopefully, the Group can have its products out, processed with the new algorithms, by Oct. 1. Esaias said the Oceans Group is starting to feel much better about the quality of its products. They remain eager to change MODIS over to the B-side electronics.

3.0 ACTION ITEMS

3.1 New Action Items
1. Salomonson: work with Yoram Kaufman and Skip Reber to produce some metrics from the science community to help convince Congress that they shouldn't keep trying to challenge this group by cutting funding support every year.

3.2 Action Items Carried Forward
1. Masuoka and Conboy: Work with Patent Counsel, Legal, and Procurement to resolve issues concerning MODIS Science Team Member software distribution. STATUS: Open. A meeting is scheduled for Aug. 28.

2. MODIS Science Team: Send updates on MODIS metadata terms/valids to Skip Reber (reber@skip.gsfc.nasa.gov). These are terms that enable users to search MODIS data. This is part of a request to the Terra Instrument teams to update metadata terms. STATUS: This action is still open.

3. Discipline Leads: Send feedback to Murphy and Guenther on setting flags for dead (non-functional) detectors while they are set to zero. Currently, MCST would like MODIS Science users to provide feedback on which detectors are dead. STATUS: This action is still open.

4. Discipline Leads: Send MODIS Data Product table updates to Skip Reber with a copy to Murphy. The MODIS Data Products table is on the Web at: http://eosdatainfo.gsfc.nasa.gov/eosdata/terra/modis/modis_dataprod.html. STATUS: This action is still open.

5. Masuoka: Represent MODIS concerns on data throughput to EDOS. STATUS: The Review Committee is now preparing a report articulating the impacts to the community.

3.3 Closed Action Items
1. Guenther: Circulate recommendation to Discipline Leaders on plans to flag and fill dead detectors. Responses from Discipline Leads are needed by this time next week. STATUS: Done.

2. Esaias: Prepare a group of charts for the next MODIS Technical Team meeting that delineates the relevant issues related to the Band 31/32 gain change and the recommendation that Tmax should be set at 340K for both bands. STATUS: Closed.

3. Masuoka: Submit an Aqua Data Product Update to ESDIS. STATUS: Closed.

4. Vermote: Remove password protection from MODLAND graphic that displays gaps in MODIS data. STATUS: Done.